

REMARKS

By this amendment, applicants have amended the claims to more clearly define their invention. In particular, applicants have amended claim 1 to recite that the gas-generating substance is for a motor vehicle safety device. See, e.g., page 1, lines 3 - 6 of applicants' specification. Claim 1 has also been amended to use the transitional phrase "comprising" and to indicate that the mixture is of N₂O, NO and one or more fuels which are solid at room temperature and solid pressure. This latter amendment is supported by the disclosure at, e.g., page 3, line 16 of applicants' specification. Applicants have canceled claims 2 and 3 and amended the remaining claims to be consistent with amended claim 1 and to eliminate the expressions deemed indefinite by the Examiner. Applicants have added claims 17 and 18 to recite features previously found in dependent claims 5 and 16, respectively.

Applicants submit the amended claims comply with the requirements of 35 USC 112, first and second paragraphs. That is, the amended claims are supported by the disclosure in the manner required by 35 USC 112, first paragraph, and particularly point out and distinctly claim the subject matter which applicants regard as their invention. Therefore, reconsideration and withdrawal of the rejection of claims 1 - 16 under 35 USC 112, first and second paragraphs, are requested.

In view of the foregoing amendments to claim 1 and the cancellation of claims 2 and 3, reconsideration and withdrawal of the rejection of claims 1 - 3 under 35 USC 101 are requested.

Claims 1 - 16 stand rejected under 35 USC 102(b) or 102(e) as allegedly being anticipated by or, in the alternative, under 35 USC 103(a) as being obvious over each of United States Patent Nos. 3,068,641 to Fox, 5,979,936 to Moore et al

and United States Patent No. 6,367,244 to Smith et al. Applicants traverse this rejection and request reconsideration thereof.

The amended claims relate to a gas generating substance for a motor vehicle safety device. The gas generating substance comprises a mixture of N_2O , NO and one or more fuels which are solid at room temperature and standard pressure. As noted at page 3, lines 16 - 24 of applicants' specification, NO may be used in the mixture with laughing gas and has the advantage that there is no formation of condensed portions which first have to evaporate during the burn-off reaction.

The patent to Fox discloses a hybrid method of rocket propulsion and is not directed to a gas-generating substance for a motor vehicle safety device. Accordingly, the Fox patent does not relate to the presently claimed invention.

Moreover, in Fox, it appears the oxidizer and solid propellant are stored separately, not in a mixture as presently claimed. Moreover, while Fox discloses oxidizers such as hydrogen peroxide, oxygen, ozone, air and nitrous oxide, the Fox patent does not disclose a mixture of N_2O with NO in combination with a solid fuel. Accordingly, the Fox patent does not disclose and would not have suggested the presently claimed invention.

The patent to Moore et al discloses an air bag inflator wherein a solid fuel material and nitrous oxide are stored in intimate contact. While the Moore et al patent discloses that the nitrous oxide can be used alone or in combination with one or more inert gases, this patent does not suggest the use of NO in the mixture, as presently claimed. Accordingly, the Moore et al patent does not suggest the presently claimed invention.

The Smith et al patent is directed to a propulsion system. Like Fox, the Smith et al patent does not relate to a gas-generating substance for a motor vehicle safety

device, and thus does not relate to the presently claimed invention. Moreover, like Fox, it appears the solid and fluid propellants are stored separately, not in the mixture. Accordingly, the Smith et al patent does not suggest the presently claimed invention.

For the foregoing reasons, it is submitted the presently claimed invention is patentable over the patents to Fox, Moore et al and Smith et al.

Applicants note the Examiner has cited a number of documents as being pertinent to applicants' disclosure. However, since these documents were not applied in rejecting claims formerly in the application, further discussion of these documents is deemed unnecessary.

In view of the foregoing amendments and remarks, favorable reconsideration and allowance of all of the claims now in the application are requested.

Applicants note from the Notification of Missing Requirements mailed October 12, 2001, that the Examiner has received a copy of the International Search Report, a copy of the references cited in the International Search Report and a copy of the International Preliminary Examination. It is requested that the Examiner indicate consideration of these documents. See, Manual of Patent Examining Procedure (MPEP) Section 609.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli,

Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 306.40262X00),
and please credit any excess fees to such deposit account.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES

IN THE CLAIMS:

1. (Amended) Gas-generating substance for a motor vehicle safety device, characterised in that it consists of comprising a mixture of laughing gas N₂O, NO and one or more fuels which are solid at room temperature and standard pressure.

4. (Amended) Gas-generating substance according to claim 1, characterised in that it additionally contains, in order to control the reactivity of the gases, at least one inert gases, preferably gas selected from the group consisting of carbon dioxide, air, helium, neon and/or argon.

5. (Amended) Gas-generating substance according to claim 1, characterised in that it contains additions of smell-intensive gases such as e.g. mercaptans in small amounts for detecting leaks.

7. (Amended) Gas-generating substance according to claim 64, characterised in that it contains the additions for improving the smell properties of the combustion gases comprise vanillin.

8. (Amended) Gas-generating substance according to claim 1, characterised in that it contains the one or more fuels comprise polymers of a material selected from the group consisting of the hydrocarbons such as ethylene, propylene, isoprene, and styrene as fuels.

9. (Amended) Gas-generating substance according to claim 1, characterised in that it contains the one or more fuels comprise oxygen-containing fuels which are derived for example from carboxylic acids such as a material selected from the group

consisting of polyvinyl acetates, polymethacrylates, polyterephthalates ~~and/or other~~, polyesters, polyethers, polycarbonates, polyoxymethylenes, ~~oligo and oligosaccharides~~, polysaccharides ~~such as sugar~~, cellulose, starch, polyvinyl acetals ~~or and~~ polyvinyl alcohols.

10. (Amended) Gas-generating substance according to claim 1, ~~characterised in that it also contains~~ further comprising explosive substances as additional reactive components of the fuels.

11. (Amended) Gas-generating substance according to claim 1, ~~characterised in that it contains as reactive components~~ further comprising one or more compounds selected from the group consisting of nitroguanidine (NiGu) ~~derivatives of tetrazole~~ such as 5-aminotetrazole, 5-aminotetrazole nitrate, bistetrazole amine, or bistetrazole, aminoguanidine nitrate, diaminoguanidine nitrate, triaminoguanidine nitrate, guanidine nitrate, dicyanodiamidine nitrate, diaminoguanidine azotetrazolate, nitrotriazolone, dicanediamidine nitrate, hexogen, and octogen.

12. (Amended) Gas-generating substance according to claim 1, ~~characterised in that it contains as~~ further comprising an additional fuel selected from the group consisting of urea, organic acids (e.g. fumaric acid, ascorbic acid, oxalic acid), cork, wood, metals (e.g. aluminium, titanium) ~~and/or non-metals (e.g. boron, silicon)~~, nitrides, azides ~~and/or inorganic benzene (and B₃N₃)~~.

13. (Amended) Gas-generating substance according to claim 1, characterised in that the one or more fuels are ~~used~~ in the form of powder, granules, pressings ~~such as e.g. tablets, or in the case of polymers e.g. also as~~, cut fibres, or twisted fibres, mats, woven fabrics, or porous foams ~~e.g. of polyurethanes~~.

14. (Amended) Gas-generating substance according to claim 1, characterised in that ~~specific embodiments may be~~ the one or more fuels are surface-treated by

being, ~~for example~~, impregnated or mixed with liquids or pasty substances, to control the burn-off.

15. (Amended) Gas-generating substance according to claim 1, ~~characterised in that it contains as further additives catalysts, for example~~ further comprising a catalyst selected from the group consisting of ferrocene and derivatives, iron or acetylacetonate and copper acetylacetonate.

16. (Amended) Gas-generating substance according to claim 1, ~~characterised in that it contains as additions~~ further comprising one or more oxidising agents such as selected from the group consisting of nitrates of alkali and alkaline earth elements, perchlorates of alkali and alkaline earth elements, ammonium nitrate, ammonium perchlorate, zinc peroxide, perborates, peroxydisulphates, permanganates, tin dioxide, manganese dioxide, oxidising agents derived from nitramines and mixtures of these components ~~and/or porosity generators, for example ammonium hydrogencarbonate, acetone dicarboxylic acid, azoiso butyronitrile and/or hollow plastics spheres.~~